4. If the patio has been soil treated for termites, the finish elevation may match the building interior finish floor elevations on masonry construction only.

5. Masonry veneers constructed in accordance with Section R318.4.

R318.8 Foam plastic protection. In areas where the probability of termite infestation is "very heavy," as indicated in Figure R301.2(6), extruded and expanded polystyrene, polyisocyanurate and other foam plastics shall not be installed on the exterior face or under interior or exterior foundation walls or slab foundations located below grade. The clearance between foam plastics installed above grade and exposed earth shall be at least 6 inches (152 mm).

Exceptions:
1. Buildings where the structural members of walls, floors, ceilings and roofs are entirely of noncombustible materials or pressure-preservative-treated wood.
2. When in addition to the requirements of Section R318.1, an approved method of protecting the foam plastic and structure from subterranean termite damage is used.
3. On the interior side of basement walls.

SECTION R319
SITE ADDRESS

R319.1 Address numbers. Buildings shall have approved address numbers, building numbers or approved building identification placed in a position that is plainly legible and visible from the street or road fronting the property. These numbers shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall be a minimum of 4 inches (102 mm) high with a minimum stroke width of 1/2 inch (12.7 mm). Where access is by means of a private road and the building address cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure.

SECTION R320
ACCESSIBILITY

R320.1 Scope. Shall be in accordance with the provisions of the Florida Building Code, Accessibility.

R320.1.1 All new single-family houses, duplexes, triplexes, condominiums and townhouses shall provide at least one bathroom, located with maximum possible privacy, where bathrooms are provided on habitable grade levels, with a door that has a 29-inch (737 mm) clear opening. However, if only a toilet room is provided at grade level, such toilet rooms shall have a clear opening of not less than 29 inches (737 mm).

SECTION R321
ELEVATORS AND PLATFORM LIFTS

R321.1 Elevators. Where provided, passenger elevators, limited-use/limited-application elevators or private residence elevators shall comply with ASME A17.1/CSA B44.

R321.2 Platform lifts. Where provided, platform lifts shall comply with ASME A18.1.

R321.3 Accessibility. Reserved.

SECTION R322
FLOOD-RESISTANT CONSTRUCTION

R322.1 General. Buildings and structures constructed in whole or in part in flood hazard areas (including A or V Zones) as established in Table R301.2(1) shall be designed and constructed in accordance with the provisions contained in this section. Buildings and structures located in whole or in part in identified floodways shall be designed and constructed in accordance with ASCE 24.

R322.1.1 Alternative provisions. As an alternative to the requirements in Section R322, ASCE 24 is permitted subject to the limitations of this code and the limitations therein.

R322.1.2 Structural systems. All structural systems of all buildings and structures shall be designed, connected and anchored to resist flotation, collapse or permanent lateral movement due to structural loads and stresses from flooding equal to the design flood elevation.

R322.1.3 Flood-resistant construction. All buildings and structures erected in areas prone to flooding shall be constructed by methods and practices that minimize flood damage.

R322.1.4 Establishing the design flood elevation. The design flood elevation shall be used to define flood hazard areas. At a minimum, the design flood elevation is the higher of:

1. The base flood elevation at the depth of peak elevation of flooding (including wave height) which has a 1 percent (100-year flood) or greater chance of being equal to or exceeded in any given year; or
2. The elevation of the design flood associated with the area designated on a flood hazard map adopted by the community, or otherwise legally designated.

R322.1.4.1 Determination of design flood elevations. If design flood elevations are not specified, the building official is authorized to require the applicant to:

1. Obtain and reasonably use data available from a federal, state or other source; or
2. Determine the design flood elevation in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Determinations shall be undertaken by a registered design professional who shall...
document that the technical methods used reflect currently accepted engineering practice. Studies, analyses and computations shall be submitted in sufficient detail to allow thorough review and approval.

R322.1.4.2 Determination of impacts. In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall demonstrate that the effect of the proposed buildings and structures on design flood elevations, including fill, when combined with all other existing and anticipated flood hazard area encroachments, will not increase the design flood elevation more than 1 foot (305 mm) at any point within the jurisdiction.

R322.1.5 Lowest floor. The lowest floor shall be the floor of the lowest enclosed area, including basement, but excluding any unfinished flood-resistant enclosure that is useable solely for vehicle parking, building access or limited storage provided that such enclosure is not built so as to render the building or structure in violation of this section.

R322.1.6 Protection of mechanical and electrical systems. Electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall be located at or above the elevation required in Section R322.2 (flood hazard areas including A Zones) or R322.3 (coastal high-hazard areas including V Zones). If replaced as part of a substantial improvement, electrical systems, equipment and components; heating, ventilating, air conditioning and plumbing appliances and plumbing fixtures; duct systems; and other service equipment shall meet the requirements of this section. Systems, fixtures, and equipment and components shall not be mounted on or penetrate through walls intended to break away under flood loads.

Exception: Locating electrical systems, equipment and components; heating, ventilating, air conditioning; plumbing appliances and plumbing fixtures; duct systems; and other service equipment is permitted below the elevation required in Section R322.2 (flood hazard areas including A Zones) or R322.3 (coastal high-hazard areas including V Zones) provided that they are designed and installed to prevent water from entering or accumulating within the components and to resist hydrostatic and hydrodynamic loads and stresses, including the effects of buoyancy, during the occurrence of flooding to the design flood elevation in accordance with ASCE 24. Electrical wiring systems are permitted to be located below the required elevation provided they conform to the provisions of the electrical part of this code for wet locations.

R322.1.7 Protection of water supply and sanitary sewage systems. New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the systems in accordance with the plumbing provisions of this code. New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of floodwaters into systems and discharges from systems into floodwaters in accordance with the plumbing provisions of this code in accordance with Chapter 64E-6, Florida Administrative Code, Standards for Onsite Sewage Treatment and Disposal Systems.

R322.1.8 Flood-resistant materials. Building materials used below the elevation required in Section R322.2 (flood hazard areas including A Zones) or R322.3 (coastal high-hazard areas including V Zones) shall comply with the following:

1. All wood, including floor sheathing, shall be pressure-preservative-treated in accordance with AWPA U1 for the species, product, preservative and end use or be the decay-resistant heartwood of redwood, black locust or cedars. Preservatives shall be listed in Section 4 of AWPA U1.

2. Materials and installation methods used for flooring and interior and exterior walls and wall coverings shall conform to the provisions of FEMA/FIA-TB-2.

R322.1.9 Manufactured homes. In addition to the applicable requirements of the state agency with jurisdiction over installation of manufactured homes, installation of manufactured homes in flood hazard areas is subject to the applicable provisions of the local floodplain management ordinance.

R322.1.10 As-built elevation documentation. A registered design professional shall prepare and seal documentation of the elevations specified in Section R322.2 or R322.3.

R322.1.11 Structures seaward of a coastal construction line. In addition to the requirements of this section, structures located in flood hazard areas and seaward of the coastal construction line shall be designed to resist the predicted forces of a 100-year storm event in accordance with Section R3109 of the Florida Building Code, Building, and the more restrictive provisions shall govern.

R322.2 Flood hazard areas (including A Zones). All areas that have been determined to be prone to flooding but not subject to high-velocity wave action shall be designated as flood hazard areas. Flood hazard areas that have been delineated as subject to wave heights between 1/2 feet (457 mm) and 3 feet (914 mm) shall be designated as Coastal A Zones. All buildings and structures constructed in whole or in part in flood hazard areas shall be designed and constructed in accordance with Sections R322.2.1 through R322.2.3.

R322.2.1 Elevation requirements.

1. Buildings and structures in flood hazard areas not designated as Coastal A Zones shall have the lowest floors elevated to or above the design flood elevation.
2. Buildings and structures in flood hazard areas designated as Coastal A Zones shall have the lowest floors elevated to or above the base flood elevation plus 1 foot (305 mm), or to the design flood elevation, whichever is higher.

3. In areas of shallow flooding (AO Zones), buildings and structures shall have the lowest floor (including basement) elevated at least as high above the highest adjacent grade as the depth number specified in feet on the FIRM, or at least 2 feet (610 mm) if a depth number is not specified.

4. Basement floors that are below grade on all sides shall be elevated to or above the design flood elevation.

**Exception:** Enclosed areas below the design flood elevation, including basements whose floors are not below grade on all sides, shall meet the requirements of Section R322.2.2.

**R322.2.2 Enclosed area below design flood elevation.** Enclosed areas, including crawl spaces, that are below the design flood elevation shall:

1. Be used solely for parking of vehicles, building access or storage.

2. Be provided with flood openings that meet the following criteria:
   
   2.1. There shall be a minimum of two openings on different sides of each enclosed area; if a building has more than one enclosed area below the design flood elevation, each area shall have openings on exterior walls.

   2.2. The total net area of all openings shall be at least 1 square inch (645 mm²) for each square foot (0.093 m²) of enclosed area, or the openings shall be designed and the construction documents shall include a statement by a registered design professional that the design of the openings will provide for equalization of hydrostatic flood forces on exterior walls by allowing for the automatic entry and exit of floodwaters as specified in Section 2.6.2.2 of ASCE 24.

   2.3. The bottom of each opening shall be 1 foot (305 mm) or less above the adjacent ground level.

   2.4. Openings shall be not less than 3 inches (76 mm) in any direction in the plane of the wall.

   2.5. Any louvered, screens or other opening covers shall allow the automatic flow of floodwaters into and out of the enclosed area.

   2.6. Openings installed in doors and windows, that meet requirements 2.1 through 2.5, are acceptable; however, doors and windows without installed openings do not meet the requirements of this section.

**R322.2.3 Foundation design and construction.** Foundation walls for all buildings and structures erected in flood hazard areas shall meet the requirements of Chapter 4.

**Exception:** Unless designed in accordance with Section R404:

1. The unsupported height of 6-inch (152 mm) plain masonry walls shall be no more than 3 feet (914 mm).

2. The unsupported height of 8-inch (203 mm) plain masonry walls shall be no more than 4 feet (1219 mm).

3. The unsupported height of 8-inch (203 mm) reinforced masonry walls shall be no more than 8 feet (2438 mm).

For the purpose of this exception, unsupported height is the distance from the finished grade of the under-floor space to the top of the wall.

**R322.2.4 Pools in flood hazard areas.** Pools that are located in flood hazard areas established by Table R301.2(1), including above-ground pools, on-ground pools, and in-ground pools that involve placement of fill, shall comply with Sections R322.2.4.1 or R322.2.4.2.

**Exception:** Pools located in riverine flood hazard areas which are outside of designated floodways.

**R322.2.4.1 Pools located in designated floodways.** Where pools are located in designated floodways, documentation shall be submitted to the building official, which demonstrates that the construction of the pool will not increase the design flood elevation at any point within the jurisdiction.

**R322.2.4.2 Pools located where floodways have not been designated.** Where pools are located in riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed pool will not increase the design flood elevation more than 1 foot (305 mm) at any point within the jurisdiction.

**R322.3 Coastal high-hazard areas (including V Zones).** Areas that have been determined to be subject to wave heights in excess of 3 feet (914 mm) or subject to high-velocity wave action or wave-induced erosion shall be designated as coastal high-hazard areas. Buildings and structures constructed in whole or in part in coastal high-hazard areas shall be designed and constructed in accordance with Sections R322.3.1 through R322.3.6.

**R322.3.1 Location and site preparation.**

1. New buildings and buildings that are determined to be substantially improved pursuant to Section R105.3.1.1, shall be located landward of the reach of mean high tide.

2. For any alteration of sand dunes and mangrove stands the building official shall require submission of an engineering analysis which demonstrates that the proposed alteration will not increase the potential for flood damage.
R322.3.2 Elevation requirements.

1. All buildings and structures erected within coastal high-hazard areas shall be elevated so that the lowest portion of all structural members supporting the lowest floor, with the exception of piling, pile caps, columns, grade beams and bracing, is elevated to or above the design flood elevation.

2. Basement floors that are below grade on all sides are prohibited.

3. The use of fill for structural support is prohibited.

4. Minor grading, and the placement of minor quantities of fill, shall be permitted for landscaping and for drainage purposes under and around buildings and for support of parking slabs, pool decks, patios and walkways.

Exception: Walls and partitions enclosing areas below the design flood elevation shall meet the requirements of Sections R322.3.4 and R322.3.5.

R322.3.3 Foundations. Buildings and structures erected in coastal high-hazard areas shall be supported on pilings or columns and shall be adequately anchored to such pilings or columns. The space below the elevated building shall be either free of obstruction or, if enclosed with walls, the walls shall meet the requirements of Section R322.3.4. Pilings shall have adequate soil penetrations to resist the combined wave and wind loads (lateral and uplift). Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code. Pile embedment shall include consideration of decreased resistance capacity caused by scour of soil strata surrounding the piling. Pile systems design and installation shall be certified in accordance with Section R322.3.6. Spread footing, mat, raft or other foundations that support columns shall not be permitted where soil investigations that are required in accordance with Section R401.4 indicate that soil material under the spread footing, mat, raft or other foundation is subject to scour or erosion from wave-velocity flow conditions. If permitted, spread footing, mat, raft or other foundations that support columns shall be designed in accordance with ASCE 24. Slabs, pools, pool decks and walkways shall be located and constructed to be structurally independent of buildings and structures and their foundations to prevent transfer of flood loads to the buildings and structures during conditions of flooding, scour or erosion from wave-velocity flow conditions, unless the buildings and structures and their foundation are designed to resist the additional flood load.

R322.3.3.1 Pools. Pools in coastal high-hazard areas shall be designed and constructed in conformance with ASCE 24.

R322.3.4 Walls below design flood elevation. Walls and partitions are permitted below the elevated floor, provided that such walls and partitions are not part of the structural support of the building or structure and:

1. Electrical, mechanical, and plumbing system components are not to be mounted on or penetrate through walls that are designed to break away under flood loads; and

2. Are constructed with insect screening or open lattice; or

3. Are designed to break away or collapse without causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system. Such walls, framing and connections shall have a resistance of not less than 10 (479 Pa) and no more than 20 pounds per square foot (958 Pa), determined using allowable stress design; or

4. Where wind loading values of this code exceed 20 pounds per square foot (958 Pa), determined using the allowable stress design, the construction documents shall include documentation prepared and sealed by a registered design professional that:

4.1. The walls and partitions below the design flood elevation have been designed to collapse from a water load less than that which would occur during the design flood.

4.2. The elevated portion of the building and supporting foundation system have been designed to withstand the effects of wind and flood loads acting simultaneously on all building components (structural and non-structural). Water-loading values used shall be those associated with the design flood. Wind-loading values shall be those required by this code.

R322.3.5 Enclosed areas below design flood elevation. Enclosed areas below the design flood elevation shall be used solely for parking of vehicles, building access or storage.

R322.3.6 Construction documents. The construction documents shall include documentation that is prepared and sealed by a registered design professional that the design and methods of construction to be used meet the applicable criteria of this section.

SECTION R323
STORM SHELTERS

R323.1 General. This section applies to the construction of storm shelters when constructed as separate detached buildings or when constructed as safe rooms within buildings for the purpose of providing safe refuge from storms that produce high winds, such as tornados and hurricanes. In addition to other applicable requirements in this code, storm shelters shall be constructed in accordance with ICC/NSSA-500.
be checked for ponding instability in accordance with Section 1611.2.

SECTION 1612
FLOOD LOADS

1612.1 General. Within flood hazard areas as established in Section 1612.3, all new construction of buildings, structures and portions of buildings and structures, including substantial improvement and restoration of substantial damage to buildings and structures, shall be designed and constructed to resist the effects of flood hazards and flood loads. For buildings that are located in more than one flood hazard area, the provisions associated with the most restrictive flood hazard area shall apply.

1612.1.1 Cross references. See Table 1612.1.

For SI: 1 inch = 25.4 mm.
STRUCTURAL DESIGN

For SI: 1 inch = 25.4 mm.

16.30
[P] FIGURE 1611.1—continued
100-YEAR, 1-HOUR RAINFALL (INCHES) EASTERN UNITED STATES

For SI: 1 inch = 25.4 mm.

FLORIDA BUILDING CODE — BUILDING, 5th EDITION (2014)
[P] FIGURE 1611.1—continued

100-YEAR, 1-HOUR RAINFALL (INCHES) ALASKA

For SI: 1 inch = 25.4 mm.
For SI: 1 inch = 25.4 mm.
Table 1612.1
CROSS REFERENCES DEFINING FLOOD RESISTANT PROVISIONS OF THE FLORIDA BUILDING CODE

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Florida Building Code – Plumbing

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1612.2 Definitions. The following terms are defined in Chapter 2:

BASE FLOOD.
BASE FLOOD ELEVATION.
BASEMENT.
DESIGN FLOOD.
DESIGN FLOOD ELEVATION.
DRY FLOODPROOFING.
EXISTING CONSTRUCTION.
EXISTING STRUCTURE.
FLOOD or FLOODING.
FLOOD DAMAGE-RESISTANT MATERIALS.
FLOOD HAZARD AREA.
FLOOD HAZARD AREA SUBJECT TO HIGH-VELOCITY WAVE ACTION.
FLOOD INSURANCE RATE MAP (FIRM).
FLOOD INSURANCE STUDY.
FLOODWAY.
LOWEST FLOOR.
SPECIAL FLOOD HAZARD AREA.
START OF CONSTRUCTION.
SUBSTANTIAL DAMAGE.
SUBSTANTIAL IMPROVEMENT.

1612.3 Establishment of flood hazard areas. To establish flood hazard areas, the applicable governing authority shall, by local floodplain management ordinance, adopt a flood hazard map and supporting data. The flood hazard map shall include, at a minimum, areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled “The Flood Insurance Study for [INSERT NAME OF JURISDICTION],” dated [INSERT DATE OF ISSUANCE], as amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto. The adopted flood hazard map and supporting data are hereby adopted by reference and declared to be part of this section.

1612.3.1 Design flood elevations. Where design flood elevations are not included in the flood hazard areas established in Section 1612.3, or where floodways are not designated, the building official is authorized to require the applicant to:

1. Obtain and reasonably utilize any design flood elevation and floodway data available from a federal, state or other source; or
2. Determine the design flood elevation and/or floodway in accordance with accepted hydrologic and hydraulic engineering practices used to define special flood hazard areas. Determinations shall be undertaken by a registered design professional who shall document that the technical methods used reflect currently accepted engineering practice.

1612.3.2 Determination of impacts. In riverine flood hazard areas where design flood elevations are specified but floodways have not been designated, the applicant shall provide a floodway analysis that demonstrates that the proposed work will not increase the design flood elevation more than 1 foot (305 mm) at any point within the jurisdiction of the applicable governing authority.

1612.4 Design and construction. The design and construction of buildings and structures located in flood hazard areas, including coastal high hazard areas, shall be in accordance with Chapter 5 of ASCE 7 and with ASCE 24.

1612.4.1 Modification of ASCE 24. Table 6-1 and Section 6.2.1 in ASCE 24 shall be modified as follows:

1. The title of Table 6.1 shall be “Minimum Elevation of Floodproofing, Relative to Base Flood Elevation (BFE) or Design Flood Elevation (DFE), in Coastal A Zones and in Other Flood Hazard Areas that are not High Risk Flood Hazard Areas.”
2. Section 6.2.1 shall be modified to permit dry floodproofing in Coastal A Zones, as follows: “Dry floodproofing of nonresidential structures and nonresidential areas of mixed-use structures shall not be allowed unless such structures are located outside of High Risk Flood Hazard areas and Coastal High Hazard Areas. Dry floodproofing shall be permitted in Coastal A Zones provided wave loads and the potential for erosion and local scour are accounted for in the design. Dry floodproofing of residential structures or residential areas of mixed-use structures shall not be permitted.”

1612.5 Flood hazard documentation. The following documentation shall be prepared and sealed by a registered design professional and submitted to the building official:

1. For construction in flood hazard areas other than coastal high hazard areas:
   1.1. The elevation of the lowest floor, including basement, as required by the foundation inspection and the final inspection in Section 110.3.
   1.2. For fully enclosed areas below the design flood elevation where provisions to allow for the automatic entry and exit of floodwaters do not meet the minimum requirements in Section 2.6.2.1 of ASCE 24, construction documents shall include a statement that the design will provide for equalization of hydrostatic flood forces in accordance with Section 2.6.2.2 of ASCE 24.
   1.3. For dry floodproofed nonresidential buildings, construction documents shall include a statement that the dry floodproofing is designed in accordance with ASCE 24.
2. For construction in coastal high hazard areas:
   2.1. The elevation of the bottom of the lowest horizontal structural member as required by the foundation inspection and the final inspection in Section 110.3.
2.2. Construction documents shall include a statement that the building is designed in accordance with ASCE 24, including that the pile or column foundation and building or structure to be attached thereto is designed to be anchored to resist flotation, collapse and lateral movement due to the effects of wind and flood loads acting simultaneously on all building components, and other load requirements of Chapter 16.

2.3. For breakaway walls designed to have a resistance of more than 20 psf (0.96 kN/m²) determined using allowable stress design, construction documents shall include a statement that the breakaway wall is designed in accordance with ASCE 24.

SECTION 1613
EARTHQUAKE LOADS

1613.1 Scope. Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7, excluding Chapter 14.

Exceptions:
1. Detached one- and two-family dwellings, assigned to Seismic Design Category A, B or C, or located where the mapped short-period spectral response acceleration, SM, is less than 0.4 g.
2. The seismic force-resisting system of wood-frame buildings that conform to the provisions of Section 2308 are not required to be analyzed as specified in this section.
3. Agricultural storage structures intended only for incidental human occupancy.
4. Structures that require special consideration of their response characteristics and environment that are not addressed by this code or ASCE 7 and for which other regulations provide seismic criteria, such as vehicular bridges, electrical transmission towers, hydraulic structures, buried utility lines and their appurtenances and nuclear reactors.

1613.2 Definitions. The following terms are defined in Chapter 2:

- DESIGN EARTHQUAKE GROUND MOTION.
- MECHANICAL SYSTEMS.
- ORTHOGONAL.
- RISK-TARGETED MAXIMUM CONSIDERED EARTHQUAKE (MCEq) GROUND MOTION RESPONSE ACCELERATION.
- SEISMIC DESIGN CATEGORY.
- SEISMIC FORCE-RESISTING SYSTEM.
- SITE CLASS.
- SITE COEFFICIENTS.

1613.3 Seismic ground motion values. Seismic ground motion values shall be determined in accordance with this section.

1613.3.1 Mapped acceleration parameters. The parameters SM and 1, shall be determined from the 0.2 and 1-second spectral response accelerations shown on Figures 1613.3.1(1) through 1613.3.1(6). Where SI is less than or equal to 0.04 and SI is less than or equal to 0.15, the structure is permitted to be assigned to Seismic Design Category A. The parameters Sg and SI shall be, respectively, 1.5 and 0.6 for Guam and 1.0 and 0.4 for American Samoa.

1613.3.2 Site class definitions. Based on the site soil properties, the site shall be classified as Site Class A, B, C, D, E or F in accordance with Chapter 20 of ASCE 7. Where the soil properties are not known in sufficient detail to determine the site class, Site Class D shall be used unless the building official or geotechnical data determines Site Class E or F soils are present at the site.

1613.3.3 Site coefficients and adjusted maximum considered earthquake spectral response acceleration parameters. The maximum considered earthquake spectral response acceleration for short periods, SM5, and at 1-second period, SM1, adjusted for site class effects shall be determined by Equations 16-37 and 16-38, respectively:

\[ S_{M5} = F_s S_i \]  
(Equation 16-37)

\[ S_{M1} = F_s S_i \]  
(Equation 16-38)

<table>
<thead>
<tr>
<th>SITE CLASS</th>
<th>MAPPED SPECTRAL RESPONSE ACCELERATION AT SHORT PERIOD</th>
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<tbody>
<tr>
<td>A</td>
<td>S_i ≤ 0.25</td>
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<tr>
<td>A</td>
<td>0.8</td>
</tr>
<tr>
<td>B</td>
<td>1.0</td>
</tr>
<tr>
<td>C</td>
<td>1.2</td>
</tr>
<tr>
<td>D</td>
<td>1.6</td>
</tr>
<tr>
<td>E</td>
<td>2.5</td>
</tr>
<tr>
<td>F</td>
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a. Use straight-line interpolation for intermediate values of mapped spectral response acceleration at short period, SI.
b. Values shall be determined in accordance with Section 11.4.7 of ASCE 7.
where the marquee is less than two-thirds of the distance from the lot line to the curb line.

3106.3 Roof construction. Where the roof or any part thereof is a skylight, the skylight shall comply with the requirements of Chapter 24. Every roof and skylight of a marquee shall be sloped to downspouts that shall conduct any drainage from the marquee in such a manner so as not to spill over the sidewalk.

3106.4 Location prohibited. Every marquee shall be so located as not to interfere with the operation of any exterior standpipe, and such that the marquee does not obstruct the clear passage of stairs or exit discharge from the building or the installation or maintenance of street lighting.

3106.5 Construction. A marquee shall be supported entirely from the building and constructed of noncombustible materials. Marquees shall be designed as required in Chapter 16. Structural members shall be protected to prevent deterioration.

SECTION 3107
SIGNS

3107.1 General. Signs shall be designed, constructed and maintained in accordance with this code.

SECTION 3108
TELECOMMUNICATION AND BROADCAST TOWERS

3108.1 General. Towers shall be designed and constructed in accordance with the provisions of TIA-222. Towers shall be designed for seismic loads; exceptions related to seismic design listed in Section 2.7.3 of TIA-222 shall not apply. In Section 2.6.6.2 of TIA 222, the horizontal extent of Topographic Category 2, escarpments, shall be 16 times the height of the escarpment.

Exception: Single free-standing poles used to support antennas not greater than 75 feet (22 860 mm), measured from the top of the pole to grade, shall not be required to be noncombustible.

3108.2 Location and access. Towers shall be located such that guy wires and other accessories shall not cross or encroach upon any street or other public space, or over above-ground electric utility lines, or encroach upon any privately owned property without the written consent of the owner of the encroached-upon property, space or above-ground electric utility lines. Towers shall be equipped with climbing and working facilities in compliance with TIA-222. Access to the tower sites shall be limited as required by applicable OSHA, FCC and EPA regulations.

SECTION 3109
STRUCTURES SEAWARD OF A COASTAL CONSTRUCTION CONTROL LINE

3109.1 General.

3109.1.1 Scope. The provisions of Section 3109 shall ensure that structures located seaward of the coastal construction control line are designed to resist the predicted forces associated with a 100-year storm event and shall apply to the following:

1. All habitable structures which extend wholly or partially seaward of a coastal construction control line (CCCL) or 50-foot (15.3 m) setback line.
2. Substantial improvement of or additions to existing habitable structures.
3. Swimming pools that are located in close proximity to a habitable structure or armoring. An environmental permit from the Florida Department of Environmental Protection, requiring special siting considerations to protect the beach-dune system, proposed or existing structures and public beach access, is required prior to the start of construction. The environmental permit may condition the nature, timing and sequence of construction of permitted activities to provide protection to nesting sea turtles and hatchlings and their habitat, including review, submittal and approval of lighting plans.

Exception: The standards for buildings seaward of a CCCL area do not apply to any modification, maintenance or repair of any existing structure within the limits of the existing foundation which does not require, involve or include any additions to, or repair or modification of, the existing foundation of that structure.

3109.1.2 Certification. As part of the permit process and upon placement of the lowest horizontal structural member, the applicant shall submit to the building official certification of the elevation of the lowest horizontal structural member of the lowest floor as built in relation to National Geodetic Vertical Datum (N.G.V.D.). Said certification shall be prepared by or under the direct supervision of a registered land surveyor or professional engineer or architect and certified by the same and be submitted prior to commencing any addition work. Any work undertaken prior to submission of the certification shall be at the applicant’s risk. The building official shall review the submitted elevation data, and any deficiencies found shall be corrected by the permit holder immediately and prior to any further work being permitted to proceed.

3109.2 Definitions. The following terms are as defined.

ARMOURING. A manmade structure designed to either prevent erosion of the upland property or protect upland structures from the effects of coastal wave and current action. Armoring includes certain rigid coastal structures such as geotextile bags or tubes, seawalls, revetments, bulkheads, retaining wall or similar structures, but does not include jetties, groins or other construction whose purpose is to add sand to the beach and dune system, alter the natural coastal currents or stabilize the mouths of inlets.

BREAKAWAY WALL. A partition independent of supporting structural members that is intended to withstand design wind forces but to collapse from a water load less than that which would occur during a 100-year storm event without...
causing collapse, displacement or other structural damage to the elevated portion of the building or supporting foundation system.

**COASTAL CONSTRUCTION CONTROL LINE.** The line established by the State of Florida pursuant to Section 161.053, *Florida Statutes*, and recorded in the official records of the county which defines that portion of the beach-dune system subject to severe fluctuations based on a 100-year storm surge, storm waves or other predictable weather conditions.

**DESIGN GRADE.** The predicted eroded grade caused by the 100-year storm.

**FIFTY-FOOT SETBACK LINE.** A line of jurisdiction, established pursuant to the provisions of Section 161.052, *Florida Statutes*, in which construction is prohibited within 50 feet (15.13 m) of the line of mean high water at any riparian coastal location fronting the Gulf of Mexico or the Atlantic coast shoreline.

**HABITABLE STRUCTURE.** Structures designed primarily for human occupancy and are potential locations for shelter from storms. Typically included within this category are residences, hotels and restaurants.

**LOWEST HORIZONTAL STRUCTURE MEMBER.** Any shore-parallel structural member which supports floor, wall or column loads and transmits them to the pile foundation.

**ONE-HUNDRED-YEAR STORM ELEVATION.** The height of the breaking wave crest or wave approach as superimposed on the storm surge with dynamic wave set-up of a 100-year storm. This 100-year storm elevation is determined by the Florida Department of Environmental Protection based on studies published as part of the coastal construction control line establishment process and an analysis of topographic and other site specific data.

**REBUILDING.** See definition of “Substantial Improvement.”

**SUBSTANTIAL IMPROVEMENT.** See Section 1612.

**3109.3 Elevation standards.** All habitable structures shall be elevated at or above an elevation which places the lowest horizontal structural member above the 100-year storm elevation as determined by the Florida Department of Environmental Protection in the report titled “One-Hundred-Year Storm Elevation Requirements for Habitability Structures Located seaward of a Coastal Construction Control Line.”

An applicant may request the Department of Environmental Protection to determine a site-specific 100-year storm elevation for the applicant’s proposed habitable structure as part of the environmental permit application process. The elevation will be provided as part of the applicant’s environmental permit and shall be subject to review under the provisions of Chapter 120, *Florida Statutes*.

**Exceptions:**

1. Additions, repairs or modifications to existing non-conforming habitable structures that do not advance the seaward limits of the existing habitable structure and do not constitute rebuilding of the existing structure.

2. Habitable structures located landward of existing armoring which is capable of protecting buildings from the effects of erosion from a 100-year storm surge. The applicant shall provide scientific and engineering evidence that the armoring has been designed, constructed and maintained to survive the effects of the design storm and provide protection to existing and proposed structures from the erosion associated with that event. Evidence shall include a report with data and supporting analysis, and shall be certified by a professional engineer registered in this state, that the armoring was designed and constructed and is in adequate condition to meet the following criteria:

   a. The top must be at or above the still water level, including setup, for the design storm plus the breaking wave calculated at its highest achievable level based on the maximum eroded beach profile and highest surge level combination, and must be high enough to preclude runup overtopping.

   b. The armoring must be stable under the design storm including maximum localized scour, with adequate penetration and toe protection to avoid settlement, toe failure, or loss of material from beneath or behind the armoring.

   c. The armoring must have sufficient continuity or return walls to prevent flanking under the design storm from impacting the proposed construction.

   d. The armoring must withstand the static and hydrodynamic forces of the design storm.

3. A higher elevation standard is required by either the National Flood Insurance Program (NFIP), as found on a community’s Flood Insurance Rate Map (FIRM), or the local flood damage prevention ordinance. In such instances, the higher elevation standard shall apply.

**3109.4 Construction standards.**

**3109.4.1 Pile foundations.** All habitable structures shall be elevated on, and securely anchored to, an adequate pile foundation. Pile foundations for habitable structures shall be designed to withstand all reasonable anticipated erosion, scour and loads resulting from a 100-year storm including wind, wave, hydrostatic and hydrodynamic forces acting simultaneously with typical structural (live and dead) loads. All habitable structures should be anchored to their pile foundation in such a manner as to prevent flotation, collapse or lateral displacement. The elevation of the soil surface to be used in the calculation of pile reactions and bearing capacities for habitable structures shall not be greater than that which would result from erosion caused by a 100-year storm event. Calculation of the design grade shall account for localized scour resulting from the presence of structural components. Design ratio or pile spacing to pile diameter should not be...
less than 8:1 for individual piles located above the design grade. Pile caps shall be set below the design grade unless designed to resist increased flood loads associated with setting the cap above the design grade, but at or below the natural grade. Pile penetration shall take into consideration the anticipated loss of soil above the design grade.

Exceptions:

1. Additions, repairs or modifications to existing nonconforming habitable structures that do not advance the seaward limits of the existing habitable structure and do not constitute rebuilding of the existing structure.

2. Habitable structures located landward of existing armoring which is capable of protecting buildings from the effects of erosion from a 100-year storm surge. The applicant shall provide scientific and engineering evidence that the armoring has been designed, constructed and maintained to survive the effects of the design storm and provide protection to existing and proposed structures from the erosion associated with that event. Evidence shall include a report with data and supporting analysis, and shall be certified by a professional engineer registered in this state, that the armoring was designed and constructed and is in adequate condition to meet the following criteria:
   a. The top must be at or above the still water level, including setup, for the design storm plus the breaking wave calculated at its highest achievable level based on the maximum eroded beach profile and highest surge level combination, and must be high enough to preclude runup overtopping.
   b. The armoring must be stable under the design storm, including maximum localized scour, with adequate penetration and toe protection to avoid settlement, toe failure or loss of material from beneath or behind the armoring.
   c. The armoring must have sufficient continuity or return walls to prevent flanking under the design storm from impacting the proposed construction.
   d. The armoring must withstand the static and hydrodynamic forces of the design storm.

3109.4.2 Walls below the 100-year storm elevation. No substantial walls or partitions shall be constructed below the level of the first finished floor of habitable structures. All other walls shall be designed to break away.

Exceptions:

1. Stairways and stairwells;
2. Shear walls perpendicular to the shoreline;
3. Shear walls parallel to the shoreline, which are limited to a maximum of 20 percent of the building length in the direction running parallel to the shore;
4. Shear walls parallel to the shoreline, which exceed 20 percent of the total building length (including any attached major structure) when they meet the following criteria:
   a. A certification is provided by a Florida-registered professional engineer that certifies that the increased length of shear walls, over 20 percent, are located landward of the 100-year erosion limit;
   b. A hydraulic analysis is provided and certified by a Florida-registered professional engineer that evaluates the potential impact of flow increase on the subject parcel and adjacent properties;
   c. The hydraulic analysis demonstrates that although the overall shearwall coverage is more than 20 percent, the increased shearwall length will not result in substantial increase of flow velocities and drag forces on the structural components of the proposed structure and neighboring structures; and
   d. The provisions under Section 3109.4.2 (Exception 4) do not include any low-rise building as defined in Section 1609.2.
5. Wind or sand screens constructed of fiber or wire mesh;
6. Light, open lattice partitions with individual, wooden lattice strips not greater than 3/4-inch (19 mm) thick and 3-inches (76 mm) wide;
7. Elevator shafts;
8. Small mechanical and electrical rooms; and

3109.5 Flood loads during a 100-year storm.

3109.5.1 Load basis. The structural design shall be based on the 100-year storm as determined by the Florida Department of Environmental Protection in studies published as part of the coastal construction control line establishment process. Breaking, broken and nonbreaking waves shall be considered as applicable. Design wave loading analysis shall consider vertical uplift pressures and all lateral pressures to include impact, as well as dynamic loading and the harmonic intensification resulting from repetitive waves.

3109.5.2 Hydrostatic load. Habitable structures shall be designed in consideration of the hydrostatic loads which would be expected under the conditions of maximum inundation associated with a 100-year storm event. Calculations for hydrostatic loads shall consider the maximum water pressure resulting from a fully peaked, breaking wave superimposed on the design storm surge with dynamic wave setup. Both free and confined hydrostatic loads shall be considered. Hydrostatic loads which are confined shall be determined using the maximum elevation to which the confined water would freely rise if unconfined. Vertical hydrostatic loads shall be considered as forces acting both vertically downward and upward on
horizontal or inclined surfaces of major structures (e.g.,
floors, slabs, roofs, walls). Lateral hydrostatic loads shall
be considered as forces acting horizontally above and
below grade on vertical or inclined surfaces of major
structures and coastal or shore protection structures.
Hydrostatic loads on irregular or curving geometric sur-
faces may be determined in consideration of separate ver-
tical and horizontal components acting simultaneously
under the distribution of the hydrostatic pressures.

3109.5.3 Hydrodynamic loads. Habitable structures shall
be designed in consideration of the hydrodynamic loads
which would be expected under the conditions of a 100-
year storm event. Calculations for hydrodynamic loads
shall consider the maximum water pressures resulting
from the motion of the water mass associated with a 100-
year storm event. Full-intensity loading shall be applied on
all structural surfaces above the design grade which would
affect the flow velocities.

3109.6 Wind loads. All habitable structures shall be
designed in accordance with Chapter 16.

3109.7 Swimming pools. Swimming pools located in close
proximity to an existing habitable structure or armoring shall
be designed with an adequate pile foundation for the erosion
and scour conditions of a 100-year storm event.

3109.8 Storm debris. All structures will be designed to mini-
mize the potential for wind and water-borne debris during a
storm.

SECTION 3110
AUTOMATIC VEHICULAR GATES

3110.1 General. Automatic vehicular gates shall comply
with the requirements of Sections 3110.2 through 3110.4 and
other applicable sections of this code.

3110.2 Definition. The following term is defined in Chapter
2:

VEHICULAR GATE.

3110.3 Vehicular gates intended for automation. Vehicular
gates intended for automation shall be designed, constructed
and installed to comply with the requirements of ASTM F
2200.

3110.4 Vehicular gate openers. Vehicular gate openers,
where provided, shall be listed in accordance with UL 325.

SECTION 3111
SOLAR PHOTOVOLTAIC PANELS/MODULES

3111.1 General. Solar photovoltaic panels/modules shall
comply with the requirements of this code and the Florida
Fire Prevention Code.

SECTION 3112
DEPOSIT OF MATERIAL IN TIDEWATER
REGULATED

3112.1 It is not lawful for any person to discharge or cause to
be discharged or deposit or cause to be deposited, in the tide
or salt waters of any bay, port, harbor or river of this state,
any ballast or material of any kind other than clear stone or
rock, free from gravel or pebbles, which said clear stone or
rock shall be deposited or discharged only in the construction
of enclosures in connection with wharves, piers, quays, jetties
or in the construction of permanent bulkheads connecting the
solid and permanent portion of wharves. It is lawful to con-
struct three characters of bulkheads for retention of material
in solid wharves.

1. First, clear stone or rock enclosures, or bulkheads, may
be built upon all sides to a height not less than \(2\frac{1}{2}\) feet
\((762\) mm) above high watermark; and after the enclo-
sures have been made so solid, tight and permanent as
to prevent any sand, mud, gravel or other material that
may be discharged or deposited in them from drifting or
escaping through such enclosures, any kind of ballast
may be discharged or deposited within the enclosures.
The enclosures may be constructed of wood, stone and
rock combined, the stone and rocks to be placed on the
outside of the wood to a height not less at any point
than 2\(\frac{1}{2}\) feet \((762\) mm) above high watermark; and
after the enclosures have been made so solid, tight and
permanent as to prevent any sand, mud gravel or other
material that may be discharged or deposited in them
from drifting or escaping through such enclosures, any
kind of ballast may be discharged or deposited within the
enclosures.

2. Second, a bulkhead may be built by a permanent wharf
consisting of thoroughly creosoted piles not less than
12 inches \((305\) mm) in diameter at the butt end, to be
driven close together and to be capped with timber not
less than 10- or 14-inches drift \((254\) or \(302\) mm), bolted
to each pile, and one or more longitudinal stringers to
be placed on the outside of the bulkhead and securely
anchored by means of iron rods to piles driven within
the bulkheads, clear rock to be on the inside of the
bulkhead, to a height of not less than 2\(\frac{1}{2}\) feet \((762\) mm)
above high water; and after this is done, ballast or other
material may be deposited within the permanent enclo-
sure so constructed.

3. Third, a bulkhead may be constructed to consist of cre-
osoted piles, as described herein, driven not exceeding
4 feet \((1219\) mm) apart from center to center, inside of
which two or more longitudinal stringers may be placed
and securely bolted to the piles. Inside of these longitudi-
nal pieces, two thicknesses of creosoted sheet piling
are to be driven, each course of the sheet piling to make
a joint with the other to form an impenetrable wharf;
and within this permanent bulkhead so constructed, any
ballast or other material may be deposited.

4. No such enclosure, pier, quay or jetty shall be begun
until the point whereat it is to be built shall have been
connected by a substantial wharf with a shore or with a
permanent wharf; except that the owners of wharves
may at any time, with the consent of the Board of Pilot
Commissioners of the Division of Professions of the
Department of Business and Professional Regulation,
build wharves of clear stone or rock, or creosoted walls
as hereinafter provided, on each side of their wharves